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Abstract

NUCLEAR REACTORS FOR STEAM GENERATION AND DISTRICT HEATING

Yu.I.Koryakin, A.A.Loginov

Combined electricity production and heat generation based on dead steam use may significantly improve performance and economics of nuclear power stations because about 5/7 of live steam enthalpy at mean pressure is lost with the condenser cooling water. The advantage of a nuclear central district heating plant over an ordinary one is that it may be used for heat supply of remotedly sited industrial enterprises which main economic characteristics (power and heat generating costs) little depend upon the place they are situated at.

The possibility of heat supply over great distances as well as ever increasing reliability and safety of nuclear power plants allow us to admit that nuclear district heating plants for industrial and house heating may be used in the nearest future.

At present in the USSR there is some operation experience of nuclear reactors for combined electricity production and district heating as well as for district heating only (heating loop at the Beloyarsk nuclear power station, organo-organic experimental facility of the Atomic Energy Institute after I.V.Kurchatov etc.).

The possibility to use nuclear reactor for steam generation and district heating is analysed and it is shown that nuclear reactor plants can and must be used for district heating purposes.

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